AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph beginning at page 1, line 17, which starts with "Traditional methods of producing" with the following amended paragraph:

Traditional methods of producing hexamethylenediamine include hydrogenation of adiponitrile over a reduced iron oxide or cobalt oxide catalyst at high pressures and temperatures. ~~US6110856~~ U.S. Pat. No. 6,110,856 describes the use of cobalt and iron based catalysts in a process for the hydrogenation of adiponitrile to a mixture of aminocapronitrile and hexamethylenediamine. The process does not produce aminocapronitrile with high selectivity, yielding 37% aminocapronitrile at 75% adiponitrile conversion. Low-pressure processes are known for the simultaneous production of aminocapronitrile and hexamethylenediamine. ~~US5,151,543~~ U.S. Pat. No. 5,151,543 describes the hydrogenation of dinitriles, including adiponitrile, in the presence of a solvent. ~~US6,258,745, US6,566,297, US6,376,714, WO99/47492 and WO03/000651A2~~ U.S. Pat. Nos. 6,258,745, 6,566,297, 6,376,714 and WO 99/47492 and WO 03/000651 A2 all describe the hydrogenation of dinitriles to aminonitriles in the presence of selectifying agents for low pressure reactions, i.e., less than about 13.89 MPa (2000 psig).

Please replace the paragraph beginning at page 1, line 31, which starts with "For simultaneous production of" with the following amended paragraph:

For simultaneous production of aminonitrile and diamines, it would be advantageous to employ [[~~a~~]] commercial equipment that is currently used for hexamethylenediamine production and that operates at high pressures, i.e., greater than 13.89 MPa (2000 psig). Additionally, it would be advantageous to operate these processes with increased selectivity to aminocapronitrile than is possible under operating conditions taught in the art.

Please replace the paragraph beginning at page 2, line 5, which starts with "The present invention is" with the following amended paragraph:

The present invention is~~, therefore,~~ a process of hydrogenating a dinitrile for the simultaneous production of aminocapronitrile and hexamethylenediamine, said process comprising[[:]] treating the dinitrile with hydrogen in the ~~present~~ presence of a catalyst and a modifier at a pressure of at least about 15.27 MPa (2200 psig), wherein said catalyst comprises an element selected from the group consisting of Fe, Ru, Co, and Ni and said modifier is at least one member selected from the group consisting of quaternary ammonium hydroxides, quaternary ammonium cyanides, quaternary ammonium fluorides, quaternary ammonium thiocyanides, quaternary phosphonium hydroxides, carbon monoxide, and hydrogen cyanide.

Please replace the paragraph beginning at page 5, line 5, which starts with "The hydrogenation reaction can" with the following amended paragraph:

The hydrogenation reaction can be conducted at a temperature of about 50 to 250°C and preferably about 90 to 180°C and at a pressure of about 15.27 to 55.26 MPa (2200 to 8000 psig) total pressure with hydrogen and preferably at about 20.78 to 34.58 MPa (3000 to 5000 psig). In a preferred mode of operation, the process is conducted continuously in a continuous stirred tank reactor (CSTR), a plug flow reactor (PFR), a slurry bubble column reactor (SBCR), or a trickle bed reactor. A continuous stirred tank reactor, also known as a back-mixed reactor, is a vessel in which the reactants are added in a continuous fashion and a flow of product stream is continuously withdrawn from it. There is adequate mixing in the vessel provided by a mixing device, e.g., a mechanical agitator, so that the composition inside the reactor is uniform and is the same as that in the product stream withdrawn. A plug flow reactor is a tubular reactor in which the reactants are added in a continuous fashion in one end of the tubular reactor and the product is withdrawn in a continuous fashion from the other end of the tube. There is no back-mixing, i.e., the composition inside the reactor tube is not uniform. It is possible to incorporate backmixing in PFRs by recycling a part of the product flow back to the inlet of the reactor. It is also possible to achieve plug flow reactor behavior by using multiple CSTRs [[~~is~~]] in series. A slurry bubble column reactor is a vessel, in which liquid reactants and gas are continuously fed to

the bottom of the reactor, while product is continuously withdrawn from the top of the reactor. The gas is present in the reactor as bubbles, which rise and simultaneously provide mixing for a solid powdered catalyst (20 to 200 μm average particle sizes). The catalyst may be removed continuously with the product and added continuously by addition with the liquid feed. A trickle bed reactor is a tubular reactor in which the catalyst is fixed while the reactants are added at the top of the reactor and flow to the bottom where the product is continuously withdrawn. Gaseous reactants may flow cocurrently with the liquid or may flow countercurrently from the bottom to the top of the reactor.

Please replace the paragraph beginning at page 8, line 1, which starts with "Comparative Example 1" with the following amended paragraph:

Comparative Example 1. A 1-L stainless steel pressure vessel was charged with ~~216 g~~ 216g of adiponitrile and 20g of a powdered, reduced iron catalyst. The vessel was sealed, purged with hydrogen and charged with 225g ammonia. It was heated to 150°C and pressurized to 4500 psig (31 MPa). As hydrogen was consumed, it was constantly replenished from a pressurized cylinder to maintain an operating pressure of 4500 psig (31 MPa). After 70 min, the reaction was stopped, and a sample was analyzed via gas chromatography. The analysis showed that the reaction product comprised 12 wt% adiponitrile (ADN), 45wt% 6-aminocapronitrile (ACN), and 36wt% hexamethylenediamine. The k_1/k_2 value was 1.1.